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INFORMATION REPORT

REPORT

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1. Dr. Franck, President of the Chamber of Technology, Berlin NW 7, Unter den Linden 12, is reported to have conferred prizes and special commendations on the directorate and staff members of the Bunawerke Schkopau (SAG Kautschuk). The citation accompanying the awards was dated 20 August 1951 and had an introduction outlining the achievements of Buna between 1948 and 1951.

2. Between 1948 and 1951, important scientific discoveries were made at Buna, which, after being put into use, increased synthetic rubber production by over 100 percent and, at the same time, made the DDR independent of West Germany's supplies of silicon compounds for hydrogenation contacts. Furthermore, a low-temperature process for producing a superior type of synthetic rubber was evolved, and experiments in polymerisation processes, changing the formula and using new catalysts, resulted in a speedier process. The results, considered successful, can be divided into four distinct groups of experiments which have been recorded in detail and are roughly described in the following paragraphs.

3. Acceleration of Polymerisation Process

Through systematic variation of the chemical formulae used for the synthesis of rubber, it was discovered that polymerisation processes could be accelerated by increasing the amount of emulsifier and decreasing the proportion of salt in the initial stages. In addition, it was discovered that the process was speeded up by increasing the amount of paraffin-fatty acid. Without impairing the quality of the product, experiments resulted in an increase of space-time utilization from 7.9 kilogram cubic-meter hours to 13.8 kilogram cubic-meter hours at a polymerisation temperature of between 48-49 degrees centigrade.

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The results of these discoveries, incorporated into the manufacturing processes, have increased synthetic rubber production at the same plant from 1,650 metric tons a month to 3,000 metric tons a month, and have, at the same time, reduced the cost of production by 147.83 DM per ton, or, in other words, have achieved a total saving of 5,600,000 DM per annum.

4. Use of New Catalyst

Experiments have revealed that the catalyst potassium persulphate, hitherto used in the synthesis of rubber, can be replaced to advantage by cumol-hydrogen peroxide. A plant for the industrial production of cumol-hydrogen peroxide has been built and is currently producing. The introduction of the new catalyst has reduced the time taken for polymerisation by a further 25 percent.

5. Results of New Process

A combination of laboratory, technical, and practical experiment has developed a new process for the production of synthetic rubber at a temperature of 5 degrees centigrade as opposed to the 45-50 degree temperature formerly necessary. The resultant product has been found to equal American "cold rubber" in all respects and to surpass it in elasticity. The product has properties which, in effect, bridge the gap, hitherto existing, between natural and synthetic rubber. A pilot plant, producing 30 tons of the new cold rubber a month, is in operation, and a second plant, designed to produce a further 100 tons a month, is under construction. The achievement of large-scale production of low-temperature synthetic rubber can be said to be of priority importance to industry.

6. Use of Kaolin for Making Butyleneglycol

The great difficulties experienced in procurement of silicon compounds necessary for manufacture of hydrogenation contacts used in the production of butyleneglycol from aldol has necessitated experiments for the discovery of alternate raw materials. The experiments revealed that kaolin can be used in place of silica gel and has the following advantages:

a. The contacts are firmer and can be more easily exchanged.

b. The hydrogenation chambers can be loaded by an additional 30 percent in the acetaldehyde hydrogenation process and by only an additional 20 percent in the aldol hydrogenation process.

c. The new contact makes it possible to lower the proportion of acetate and acetic acid in the hydrogenation spirit.

d. The new contact can be used in all forms of hydrogenation.

e. It is expected that a number of catalysts can be used with the new contact. Experiments are being conducted to this end.

f. Since the price of silica gel is 2.70 DM per kilogram, some millions of DM (West) have been saved.